

Product Environmental Aspects Declaration



EP and IJ printer (PCR-ID:AD-04)

No. AD-16-E747

Date of publication
04/20/2016

TOSHIBA
Leading Innovation >>>

e-STUDIO™ 2309A

TOSHIBA TEC
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Corporate Quality & Environmental
Group
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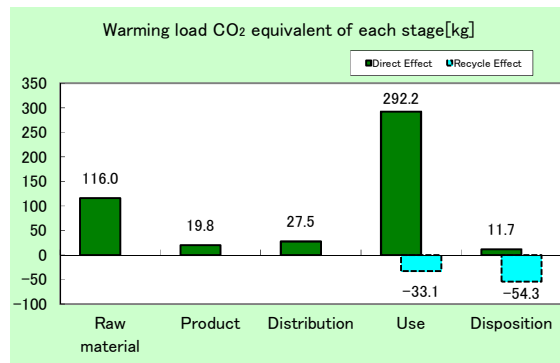
- Marking technologies : Electrophotographic Printer(EP)
 - Printing Speed: 23 LTR Pages per minutes (B/W)
 - Maximum Paper Size : LD
 - Duplex copying : Standard
- The number of copies when used for 5 years is 317,400



Paper Feed Unit and Desk are optional

Consumption and discharge in a life cycle	All the stage sum totals
Global Warming (CO ₂ equivalent)	467.169kg (379.798kg)
Acidification (SO ₂ equivalent)	0.829kg (0.667kg)
Energy resources (crude oil equivalent)	9.231MJ (7.518MJ)

※Figures in () indicated environmental impact including recycle effect *note3



Notes:

1. Original LCA data is available on PEIDS: Product Environmental Information Declaration Sheet, and Product Data Sheet.
2. Unified rules and requirements for EcoLeaf LCA, for intended product category, are available as a PCR: Product Category Rule. Visit EcoLeaf website under JEMAI homepage at <http://www.ecoleaf.jemai.jp/eng/> for details.
3. Recycle Effect illustrates an indirect influence to other products/services.
4. Basic Units used for calculations are based on Japan domestic data at this time, due to a lack of base data to establish localized Basic Unit for overseas locations adequately.
5. This declaration was produced using Product Category Rule intended for a product model sold in the Japanese market and using the qualitative and quantitative data collected in Japan.

[Supplemental environmental information]

- Certified to the international ENERGY STAR Program V2.0, EU RoHS
- Manufactured at ISO14001 certified factories

PCR review was conducted by : PCR Deliberation Committee, January 01, 2008, Name of representative: Youji Uchiyama, University of Tsukuba, Graduate School

Independent verification of the declaration and data, according to ISO14025:2006 internal external

Third party verifier: Hiroyuki Takenouchi

Programme operator: Japan Environmental Management Association for Industry, ecoleaf@jemai.or.jp

* In the case of an business entity certified as an Ecoleaf-data-collection system, the names of certification auditors are written. The Ecoleaf is an environmental labeling program that belongs to the ISO-TypeIII category.

Product Environmental Information Data Sheet (PEIDS)



Document control no.	F-02Bs-02
Product vendor	TOSHIBA TEC CORPORATION
EcoLeaf registration no.	AD-16-E747

Unit Function DB version	v2.1
Characterization Factor DB version	v2.1

PCR name	EP and IJ printer	Product type	TOSHIBA MFP e-STUDIO2309A				
PCR code	AD-04	Product weight (kg)	25	Package (kg)	6.6	Weight total (kg)	31.6

In/Out items	Life Cycle Stage	Unit	Production		Distribution	Use	Disposition	Recycle Effect			
			Raw material	Product							
Energy Consumption											
		MJ	2.34E+03	3.62E+02	3.72E+02	6.14E+03	2.58E+01	-1.71E+03			
		Mcal	5.58E+02	8.64E+01	8.89E+01	1.47E+03	6.16E+00	-4.09E+02			
Inventory analyses	Impact by Resource Consumption	Energy resources	Coal	kg	1.31E+01	2.52E+00	8.69E-04	2.80E+01	8.93E-02	-1.23E+01	
			Crude oil (for fuel)	kg	2.25E+01	2.90E+00	8.12E+00	5.29E+01	3.97E-01	-1.52E+01	
			LNG	kg	3.54E+00	1.26E+00	1.25E-01	1.49E+01	4.96E-02	-1.38E+00	
			Uranium content of an ore	kg	3.27E-04	1.70E-04	5.89E-08	1.69E-03	6.05E-06	-7.72E-05	
			Crude oil (for material)	kg	1.35E+01	0	0	1.57E+01	0	-1.20E+01	
			Iron content of an ore	kg	7.83E+00	0	0	2.28E+00	0	-1.01E+01	
		Exhaustible resources	Mineral resources	Cu content of an ore	kg	4.14E-01	0	0	0	0	-1.95E-01
				Al content of an ore	kg	2.29E-01	0	0	4.50E-01	0	-6.21E-01
				Ni content of an ore	kg	3.25E-01	0	0	1.39E-03	0	-3.25E-01
				C content of an ore	kg	4.42E-01	0	0	2.67E-03	0	-4.44E-01
				Mn content of an ore	kg	8.98E-02	0	0	1.23E-02	0	-5.46E-02
				Pb content of an ore	kg	2.22E-02	0	0	0	0	-1.58E-02
				Sn content of an ore	kg	0	0	0	0	0	0
				Zn content of an ore	kg	2.18E-01	0	0	0	0	-1.56E-01
				Au content of an ore	kg	0	0	0	0	0	0
				Ag content of an ore	kg	0	0	0	0	0	0
				Silica Sand	kg	1.24E+00	0	0	2.69E-02	0	-9.66E-01
				Halite	kg	7.39E+00	0	0	1.47E+00	6.85E-03	-3.74E+00
				Limestone	kg	1.94E+00	0	0	1.01E+00	4.43E-01	-1.93E+00
				Natural soda ash	kg	1.24E-01	0	0	0	0	-9.85E-02
				Wood	kg	1.05E+01	0	0	1.75E+01	0	-2.79E+01
				Water	kg	7.73E+03	1.91E+03	6.55E-01	1.06E+05	7.45E+01	-3.43E+03
				Impact by Emission/Discharge to the environment	to Atmosphere	CO ₂	kg	1.13E+02	1.98E+01	2.64E+01	2.88E+02
Sox	kg	7.81E-02	1.49E-02			1.77E-02	2.05E-01	6.62E-03	-6.52E-02		
Nox	kg	1.58E-01	1.20E-02			1.54E-01	3.75E-01	2.49E-02	-1.37E-01		
N ₂ O	kg	1.13E-02	2.83E-04			4.04E-03	1.62E-02	4.43E-05	-9.23E-03		
CH ₄	kg	8.70E-04	4.56E-04			1.57E-07	4.52E-03	1.62E-05	-1.92E-04		
CO	kg	1.59E-02	2.90E-03			4.54E-02	6.97E-02	5.80E-03	-1.47E-02		
NMVOG	kg	1.70E-03	8.93E-04			3.08E-07	8.85E-03	3.17E-05	-3.76E-04		
CxHy	kg	5.41E-03	5.89E-05			4.20E-03	8.56E-03	2.37E-04	-4.44E-03		
Dust	kg	1.73E-02	6.46E-04			1.40E-02	3.07E-02	9.05E-04	-1.53E-02		
to Water system	to Water domain	BOD	kg			-	-	-	-	-	-
		COD	kg			-	-	-	-	-	-
		N total	kg			-	-	-	-	-	-
		P total	kg			-	-	-	-	-	-
		SS	kg			-	-	-	-	-	-
			kg			-	1.80E-02	-	-	-	-
to Soil system	Unspecified Solid Waste	kg	1.15E+00			6.79E-07	0	2.03E+00	6.30E-01	-5.82E-01	
	Slag	kg	3.07E+00			0	0	6.91E-01	0	-3.44E+00	
	Sludge	kg	3.57E-01	0	0	9.66E-01	0	-1.33E+00			
	Low level radio-active waste	kg	2.29E-04	1.19E-04	4.12E-08	1.18E-03	4.23E-06	-5.40E-05			
	Energy resources (crude oil equivalent)	kg	3.78E+01	7.43E+00	8.28E+00	1.03E+02	5.64E-01	-2.54E+01			
	Mineral resources (iron ore equivalent)	kg	3.71E+02	0	0	1.33E+01	0	-3.33E+02			
Impact assessment	By Res	to Atmosphere	Global Warming (CO ₂ equivalent)	kg	1.16E+02	1.98E+01	2.75E+01	2.92E+02	1.17E+01	-8.74E+01	
			Acidification (SO ₂ equivalent)	kg	1.89E-01	2.33E-02	1.25E-01	4.67E-01	2.40E-02	-1.61E-01	
			Ozone Depletion (CFC-11 equivalent)	kg	-	-	-	-	-	-	
			Photochemical Oxidant	kg	-	-	-	-	-	-	
			Eutrophication (Phosphate equivalent)	kg	-	-	-	-	-	-	

[Notes for readers: EcoLeaf common rules]

I. Stage related

A. "Production" stage is intended for two sub-stages listed below.

- "Raw material" production: consists of mining, transportation and raw material production.
- "Product" production: consists of the parts processing, assembly and installation.

B. "Distribution" stage is intended for transportation of produced product. Transportation of consumables and maintenance goods (e.g. replacement parts) for use of the product are included into "Use" stage.

C. "Use" stage is intended for use of the product (active mode, standby mode, etc.) and production, transportation to disposal/recycle of consumables/maintenance goods (e.g. replacement parts).

D. "Disposition/Recycle" stage is intended for environmental impacts by product disposition/recycle, and deduction by recycling (e.g. impact reduction of raw material production).

E. "Recycle Effect" illustrates an indirect environmental influences to other products/services by use of reclaimed materials/parts, and/or by supply of used products to other businesses for material reclaim/parts reuse.

Case 1: Use of reclaimed materials/parts: Sum of increase of environmental impact by collection activities of used materials/parts, and decrease by volume reduction of used materials/parts.

Case 2: Supply of used products to other businesses for material reclaim/parts reuse: Sum of increase of environmental impact by materials/parts reclaiming process, and decrease by volume reduction of new materials/parts production.

II. Inventory analyses

A. Data of mineral ore on "Exhaustible resources" are presented in weight of pure ingredients (e.g. iron, aluminum) in the ore.

B. Data on energy resources are presented based on origin in calorific value. e.g. Data on uranium ore presents weight of uranium concentrate, which is available for use as an atomic fuel.

C. Data of discharge to water system are in actual figure (not calculated using unit function in inventory analyses).

III. Impact analyses

Result of the "Impact analyses" is found in converting results of inventory analyses into total amount of a reference material (e.g. CO₂ in case of "Global Warming").

A. Impact "by resource consumption" represents magnitude of impacts to resource depletion.

B. Impact "by emission/discharge to environment" represents magnitude of impacts to Atmosphere, Water and Soil system.

IV. Data entry format

A. Exponential notation, after the decimal point to two, should be used.

B. Indicate "0" instead exponential notation, if the result of calculation or estimation is considered as "zero" or negligible in comparison to related results.

C. Indicate "-" if calculation nor estimation can not be done, in order to differentiate to indicate "zero".

(BGD for material production are for production from mineral ore. Those data do not include reclaiming processes like recovery from scrap.)

[Notes for readers: Target product specific]

This declaration was produced using Product Category Rule intended for a product model sold in the Japanese market and using the qualitative and quantitative data collected in Japan.

Product data sheet

(Input data and parameters for LCA)



Document control no.	F-03s-02
Product vendor	TOSHIBA TEC CORPORATION
EcoLeaf registration no.	AD-16-E747

PCR name	EP and IJ printer	Product type	TOSHIBA MFP e-STUDIO2309A				
LCA/LCIA in units of:	1	Product weight (kg)	25	Package (kg)	6.6	Weight total (kg)	31.6

1. Product information (per unit): parts etc. by material and by process/assembly method

Product	Breakdown of primary materials				Math breakdown of parts, which need to apply Processing / Assembly Base Units (Parts B, C)			
	Material name	Weight (kg)	Material name	Weight (kg)	Process name	Weight (kg)	Process name	Weight (kg)
	Ordinary steel	6.16E+00	Paper	4.91E+00	Press molding:Iron (kg)	6.69E+00	Parts assembly (kg)	2.55E-01
	Stainless steel	2.06E+00	Semiconductor substrate	5.68E-01	Press molding:Nonferrous metal (kg)	5.49E+00		
	Other metals	6.47E-01	Medium-sized motor	7.09E-01	Injection molding (kg)	1.94E+01		
	Aluminum	1.57E-01						
	Glass	1.31E+00						
	Thermoplastic resin	1.45E+01						
	Thermosetting resin	1.38E-01						
	Rubber	4.18E-01						
	Subtotal	2.54E+01	Subtotal	6.19E+00				
	Total			3.16E+01	Subtotal	3.16E+01	Subtotal	2.55E-01

Note

2. Production site information (per unit): Consumption and discharge/emission for production/processing/assembly within the site.

SOx and NOx should be indicated in SO₂, NO₂ equivalent.

Consumption	Classification	Energy	Energy	Energy	Material				
	Distribution	Electricity (kWh)	Furnace LPG (kg)	Heavy oil as fuel (kg)	Industrial water (kg)				
	Quantity	7.35E+00	5.00E-02	6.00E-03	1.80E-02				
	Note								
Emission/Discharge	Classification	Water system							
	Distribution	Sewage processing (kg)							
	Quantity	1.80E-02							
	Note								

Note

3. Distribution stage information (per unit): means, distance, loading ratio, consumptions and emissions/discharges.

Distribution	Means of transportation	Diesel truck: 10 ton (kg·km)	Diesel truck: 10 ton (kg·km)	Diesel truck: 10 ton (kg·km)	Diesel truck: 10 ton (kg·km)	Freight by ship (kg·km)	Freight by ship (kg·km)	Freight by ship (kg·km)	Freight by ship (kg·km)
	Conditions	Mass(kg)	Distance (km)	Loading Ratio(%w)	Load(kg·km)	Mass(kg)	Distance (km)	Loading Ratio(%w)	Load(kg·km)
	Quantity	3.16E+01	1.00E+03	3.41E+01	9.27E+04	3.16E+01	1.17E+04	1.00E+02	3.69E+05
	Note								

Note

4. Use stage (per unit): use condition (mode, term) including active mode, standby mode and maintenance.

4.1 Product and accessories subject to this analysis

Product	Classification	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption
	Distribution	Cold-Rolled steel plate (kg)	Stainless steel plate (kg)	Aluminum plate (kg)	Low density polyethylene (kg)	Polystyrene (kg)	POM (polyacetal) (kg)	PAG66 (Polyamide 66) (kg)	PET (kg)
	Quantity	2.20E+00	8.50E-03	4.26E-01	7.80E-02	1.10E+01	7.60E-03	2.50E-03	6.42E+00
	Note								
Product	Classification	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Process	Consumption
	Distribution	Expandable hard polyurethane (Hard) (kg)	Corrugated cardboard (kg)	Paper (Western style) (kg)	Press molding: Nonferrous metal (kg)	Injection molding (kg)	Blow molding (kg)	Freight by ship (kg·km)	Electricity (kWh)
	Quantity	6.31E-01	8.19E+00	8.50E-03	8.26E+00	1.10E+01	7.80E-02	4.04E+05	3.24E+02
	Note								
Product	Classification	Consumption	Consumption	Consumption	Consumption	Discharge	Process	Process	Process
	Distribution	LNG (kg)	Urban gas (13A) (m3)	Industrial water (kg)	Clean water (kg)	Sewage processing (kg)	Diesel truck: 4 ton (kg·km)	Landfill: Industrial waste (kg)	Incineration: Industrial waste (kg)
	Quantity	9.80E-02	7.67E-01	1.57E+01	7.86E+04	9.44E+04	4.87E+04	3.90E-01	5.32E+00
	Note								

Note

4.2 Disposition/Recycle information on consumables and replacement parts

Consumables	Classification	Process	Process	Process	Process	Process	Deduction	Deduction	Deduction
	Distribution	Shredding (kg)	Recycle: to cold-rolled steel (kg)	Recycle: to Aluminum plate (kg)	Recycle: to Thermoplastic pellet (kg)	Recycle: to corrugated cardboard (kg)	Cold-Rolled steel plate (kg)	Aluminum plate (kg)	Polystyrene (kg)
	Quantity	8.23E+00	2.21E+00	4.30E-01	6.03E+00	8.19E+00	2.20E+00	4.30E-01	5.66E+00
	Note								
Consumables	Classification	Deduction							
	Distribution	Corrugated cardboard (kg)							
	Quantity	8.19E+00							
	Note								

Note

5. Disposition/Recycle stage information (per product): process method and scenarios

Scenario	Classification	Process	Process	Process	Process	Process	Process	Process	Process
	Distribution	Shredding (kg)	Landfill: Industrial waste (kg)	Diesel truck: 10 ton (kg·km)	Incineration: Industrial waste (kg)	Recycle: to cold-rolled steel (kg)	Recycle: to copper plate (kg)	Recycle: to Aluminum plate (kg)	Recycle: to Glass (kg)
	Quantity	3.04E+01	6.30E-01	9.26E+03	6.84E+00	8.93E+00	6.47E-01	1.57E-01	1.17E+00
	Note								
Scenario	Classification	Process	Process	Process	Deduction	Deduction	Deduction	Deduction	Deduction
	Distribution	Recycle: to Thermoplastic pellet (kg)	Recycle: to corrugated cardboard (kg)	Recycle: to Paper (kg)	Cold-Rolled steel plate (kg)	Electroplated steel Plate (kg)	Hot Dipped steel plate (kg)	Stainless steel plate (kg)	Copper plate (kg)
	Quantity	8.33E+00	4.75E+00	1.55E-01	2.00E-01	6.60E+00	6.87E-02	2.06E+00	6.47E-01
	Note								
Scenario	Classification	Deduction	Deduction	Deduction	Deduction	Deduction	Deduction	Deduction	Deduction
	Distribution	Aluminum plate (kg)	Glass (kg)	Polypropylene (kg)	Polystyrene (kg)	Polycarbonate (kg)	Polycarbonate-ABS (70/30) (kg)	ABS (kg)	PET (kg)
	Quantity	1.57E-01	1.17E+00	9.71E-01	1.48E+00	5.33E-01	2.72E+00	1.01E+00	3.94E-01
	Note								
Scenario	Classification	Deduction	Deduction						
	Distribution	Corrugated cardboard (kg)	Paper (Western style) (kg)						
	Quantity	4.75E+00	1.55E-01						
	Note								

Note

Product data sheet

(Input data and parameters for LCA)



6. Others.

The following basic units are used in the LCA.

The sources of these basic units are provided in the Eco Leaf Environmental Label LCI Common Basic Unit (V2.1).

URL: http://www.ecoleaf-jemai.jp/application/data/basicunit_en20150601.pdf

NO.	Base Unit Name	Unit	Field	
1	Cold-Rolled steel plate	kg	Material Production (Metal)	
2	Electroplated steel Plate	kg		
3	Hot Dipped steel plate	kg		
6	Stainless Steel Plate	kg		
7	Cu Plate	kg		
8	Al Plate	kg		
16	Glass	kg		Material Production (Inorganic Chemistry)
26	PE (High-density)	kg		Material Production (Synthetic Resin)
27	PE (Low-density)	kg		
28	PP	kg		
29	PS	kg		
31	PBT (Polybutylene Terephthalate)	kg		
32	PC (Polycarbonate)	kg		
33	PC-ABS resin (70/30)	kg		
34	POM (Polyacetal)	kg		
36	ABS	kg		
38	MMA Resin	kg		
39	PA66 (Polyamide 66)	kg		
40	PET	kg		
42	Rigid Urethane Foam	kg		
43	Soft Urethane Foam (for Automobile)	kg	Material Production (Rubber)	
48	Nitrile-butadiene rubber (NBR)	kg	Material Production (Rubber)	
49	Styrene-butadiene rubber (SBR)	kg		
67	Corrugated cardboard	kg	Material Production (Wood and Paper)	
69	Paper (Western style)	kg	Parts Production (General)	
76	Assembled circuit board	kg		
78	Medium-sized motor	kg	Processing	
85	Press Forming: Iron	kg		
86	Press Forming: Nonferrous metal	kg		
87	Injection molding	kg		
88	Blow molding	kg	Assembly	
90	Parts assembly	kg		
92	4-ton Truck	kg.km	Transportation	
93	10-ton Truck	kg.km		
97	Freight by ship	kg.km		
99	Electric Power	kg	Electric Power and Fuel	
100	Heavy oil as fuel	kg		
108	Furnace LPG	kg		
117	Town Gas m3	m3		
119	LNG	kg		
125	Industrial water	kg	Utility (Water)	
126	Clean water (kg)	kg	Disposal and Recycling (Crushing and Sorting)	
129	Shredding	kg		
134	Incineration: Industrial waste	kg	Disposal and Recycling (Incineration and Landfill)	
137	Landfill: Industrial waste	kg		
138	Recycle: to cold-rolled steel	kg	Disposal and Recycling (Regeneration)	
139	Recycle: to copper plate	kg		
140	Recycle: to Aluminum plate	kg		
141	Recycle: to Thermoplastic pellet	kg		
142	Recycle: to corrugated cardboard	kg		
144	Recycle: to Paper	kg		
145	Recycle: to Glass	kg		
146	Sewage processing	kg		

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